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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,136	09/27/2004	Tomoya Yano	075834.00326	1992
33448 7590 12/22/2006 ROBERT J. DEPKE LEWIS T. STEADMAN ROCKEY, DEPKE, LYONS AND KITZINGER, LLC SUITE 5450 SEARS TOWER CHICAGO, IL 60606-6306			EXAMINER KONG, ANDREW D	
			ART UNIT	PAPER NUMBER
			2851	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/22/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/509,136

Applicant(s)

YANO, TOMOYA

Examiner

Andrew Kong

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S. Pat. No.6,899,430) in view of Yamagishi et al. (US 6,666,558).

With respect to claim 4, Johnson teaches an image display apparatus comprising: An illumination optical system having a light source (100); a plurality of spatial light modulation elements each having reflecting electrodes (122,130,132); a polarization element corresponding to each of the plural spatial light modulation elements (121,129,131); a color separation/composition element (118,128,124); a projection optical system for projecting composited light outgoing from the color separation/composition element to display an image of the respective spatial light modulation elements (138); a first polarization change means (116) for causing light of wavelength band which is supposed to pass through the reflection planes of the color separation/composition element to be of P-polarized light toward the reflection planes and causing light of wavelength band which is supposed to be reflected by the reflection planes of the color separation/composition element to be of S-polarized light toward the reflection planes,

the first polarization change means being disposed in an optical path between the illumination optical system and the color separation/composition element;
a second polarization change means for rotating polarization direction of light of a wavelength band which is supposed to be blocked by the polarization element, the second polarization change means being disposed in an optical path between the color separation/composition element and the polarization element corresponding to at least one spatial light modulation element. (See fig2, 126 for the second retarder stack which is located between the color separation/composition element 118 and the polarization element 129 or 131).

Johnson does not teach the illumination light from the illumination optical system entering a condenser lens whose optical access is directed obliquely against the illumination light.

Yamagishi in figure 1 shows two light sources being illuminated on a condenser lens 111 diagonally (obliquely).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Johnson to illuminate light on the condenser lens obliquely such as that taught by Yamagishi for the purpose of utilizing multiple light sources in a limited space in the projector housing.

With respect to claim 5:

The image display apparatus according to claim 4, wherein the second polarization change means is a retarder stack which, of the illumination light, rotates only polarization direction of light of wavelength band which is supposed to be blocked by

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the polarization element. See fig 2, the retarder stack (126) rotates red light and then blocked by the PBS3 to reflect the red light to the corresponding light modulator.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S. Pat. No.6,899,430) in view of Yamagishi et al. (US 6,666,558) and further in view of Sonehara (U.S. Pat. No. 5,073,013).

Johnson in view of Yamagishi teaches the salient features of the claimed invention as discussed above except adjusting white balance by rotating the polarization elements.

Sonehara teaches in claim 4 that it was known to adjust white balance by rotating the polarization elements.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Johnson in view of Yamagishi to adjust white balance by rotating the polarization elements as taught by Sonehara for the purpose of improving contrast and for maximizing utilization of light from the light source.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S. Pat. No.6,899,430) in view of Svardal (US 6,547,396).

With respect to claim 7, Johnson teaches an image display apparatus comprising: An illumination optical system having a light source (100); a plurality of spatial light modulation elements each having reflecting electrodes (122,130,132);

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a polarization element corresponding to each of the plural spatial light modulation elements (121,129,131);

a color separation/composition element (118,128,124); a projection optical system for projecting composited light outgoing from the color separation/composition element to display an image of the respective spatial light modulation elements (138);

a first polarization change means (116) for causing light of wavelength band which is supposed to pass through the reflection planes of the color separation/composition element to be of P-polarized light toward the reflection planes and causing light of wavelength band which is supposed to be reflected by the reflection planes of the color separation/composition element to be of S-polarized light toward the reflection planes, the first polarization change means being disposed in an optical path between the illumination optical system and the color separation/composition element;

a second polarization change means for rotating polarization direction of light of a wavelength band which is supposed to be blocked by the polarization element, the second polarization change means being disposed in an optical path between the color separation/composition element and the polarization element corresponding to at least one spatial light modulation element. (See fig2, 126 for the second retarder stack which is located between the color separation/composition element 118 and the polarization element 129 or 131).

Johnson does not teach the color separation/composition element is comprised of a single rectangular body.

Svardal teaches a projector having only one separation/composition element in a single rectangular body (see figure 2 element 36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Johnson to utilize only one separation/composition element for the purpose of making the projector smaller and reducing the cost.

With respect to claim 8:

The image display apparatus according to claim 7, wherein the second polarization change means is a retarder stack which, of the illumination light, rotates only polarization direction of light of wavelength band which is supposed to be blocked by the polarization element. See fig 2, the retarder stack (126) rotates red light and then blocked by the PBS3 to reflect the red light to the corresponding light modulator.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (U.S. Pat. No.6,899,430) in view of Yamagishi et al. (US 6,666,558) and further in view of Sonehara (U.S. Pat. No. 5,073,013).

Johnson in view of Yamagishi teaches the salient features of the claimed invention as discussed above except adjusting white balance by rotating the polarization elements.

Sonehara teaches in claim 7 that it was known to adjust white balance by rotating the polarization elements.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Johnson in view of Yamagishi to adjust white balance by rotating

the polarization elements as taught by Sonehara for the purpose of improving contrast and for maximizing utilization of light from the light source.

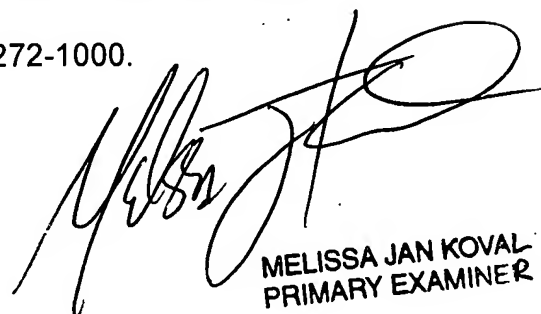
Conclusion

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Kong whose telephone number is 571-272-8062. The examiner can normally be reached on Mon - Fri (8am - 5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MELISSA JAN KOVAL
PRIMARY EXAMINER